

cent epoch. For the last thirty-four years these fundamental rocks of Florida, often called the Ocala limestone, have been thought to be nearly equivalent in age to the Vicksburg limestone of Mississippi and Alabama and have been called the Vicksburg group. A short time ago C. Wythe Cooke, of the Geological Survey, discovered that the Ocala or so-called Vicksburg limestone of Florida contains many fossil remains of sea shells of the same species that occur in the marls near Jackson, Miss., and that are known to have become extinct before the rocks at Vicksburg were deposited. It therefore appears that the Ocala limestone is of about the same age as the Jackson formation and is considerably older than has heretofore been supposed. Instead of being of recent origin, as was thought by Agassiz and LeConte, the Floridian plateau was in existence during the Eocene era—probably two million years ago. A copy of Mr. Cooke's paper on the age of the Ocala limestone, which is technical and intended mainly for the use of professional geologists, will be sent free on application to the Director, United States Geological Survey.

UNIVERSITY AND EDUCATIONAL NEWS

MRS. RUSSELL SAGE has given Syracuse University a fund to build a college of agriculture as a memorial to her father, Joseph Slocum. The building is to cost several hundred thousand dollars, the exact sum to be decided later. The site for the building is to be determined at a meeting of the university trustees, December 14. Construction will be started early in the spring.

A NEW building will be constructed for the University of Illinois Medical School in Chicago for the clinical courses. The initial cost is to be about \$100,000, which will pay for one wing. This will be added to later as the demand for room increases.

THE trustees of Delaware College have made plans for the expenditure of a gift of \$500,000 to the college by an unnamed donor. A report submitted by H. Rodney Sharp, chairman of

the Plans and Development Committee, which was approved by the board, showed that \$250,000 will be used for a science hall to house the agricultural and chemical departments, \$75,000 to remodel the old dormitory building and turn it into a commons for the students, and \$200,000 will be set aside for maintenance.

FIRE early on December 7 destroyed the Thompson chemical laboratory of Williams College, a three-story brick structure, loss of which is estimated at \$100,000. The fire started in a workroom on the first floor from spontaneous combustion, according to the college authorities and quickly spread through the building.

WARSAW UNIVERSITY and Warsaw Observatory have been transferred by the Russians to Rostow-upon-Don. At the same time the German government has reestablished the University of Warsaw, and added a faculty of medicine. Dr. von Brudsynski has been appointed rector, and Professor Wilhelm Paszkowski, in charge of the academic information bureau at Berlin, has been sent to Warsaw to advise on the reorganization of the university.

DR. EDWIN B. CRAIGHEAD, whom the state board of education failed to reelect as president of the University of Montana, has been elected commissioner of education of the State University of North Dakota. The three professors of the University of Montana which the board of education failed to reelect, Professor Mary Stewart, dean of women, Dr. T. B. Bolton, professor of psychology, and Dr. G. F. Reynolds, professor of English, have been reelected. They have, however, been given leave of absence for the coming year.

DR. WILLIAM OPHÜLS, professor of pathology, has been appointed acting dean of the Stanford University Medical School, in place of Dr. R. L. Wilbur, whose term as president of Stanford University begins January 1, 1916.

AT the University of Kansas, Dr. C. H. Ashton has been promoted from an associate professorship to a full professorship of mathematics.

MISS GERTRUDE I. MCCAIN has been appointed professor of mathematics in the Western College for Women, Oxford, Ohio.

DISCUSSION AND CORRESPONDENCE

A REMARKABLE ECLIPSE

TO THE EDITOR OF SCIENCE: Eclipses of the sun and moon occur with such frequency and are so similar in character and appearance that a distinction between them sufficiently great to be noticed by the uncritical observer would seem to be out of the question. The cause of eclipses is well known, and as they may be easily calculated the times of their occurrence and nature of their appearance are always published in the Nautical Almanac two or three years before they actually take place. Total eclipses of the sun have for many years afforded the necessary darkness for observing the heavens in close proximity to the sun; and numerous expeditions have been sent to distant parts of the earth in order to take advantage of the few moments of additional darkness thus afforded; and much interesting and useful information concerning the physical constitution of the sun has been obtained in this manner. At the present time, however, the chief importance of eclipses lies in the opportunities they afford for testing the accuracy of the calculations of mathematicians, and the correctness of the physical theories on which such calculations are based; and for this purpose the distinction between partial and total eclipses is of little importance.

In the year 1915 there were only two eclipses, both of the sun. The first occurred on February 13 under ordinary circumstances; the central eclipse began at sunrise in the Indian Ocean a few degrees to the southward of the island of Madagascar; passing along the northwestern coast of Australia, it crossed the island of New Guinea and ended at sunset in the North Pacific Ocean. The second eclipse took place on August 10; beginning at sunrise a few degrees to the southward of the Japanese Islands in the North Pacific Ocean. It moved to the eastward a few degrees southward of the Sandwich Islands at noon, and ended at sunset in the South Pacific Ocean. These two

eclipses were very similar in character in so far as outward appearances are concerned. Their relative importance arises from the very dissimilar conditions under which they took place. In the eclipse of August 10 the centers of the *sun*, *moon* and *earth* were very nearly *in the same straight line*. I have examined the record of all the eclipses that have taken place since the year 1767; and I find that in the year 1903 there were two very similar eclipses; one of which took place on February 21 and the other on August 17 of that year.

It has, therefore, been *one hundred and twelve years* since a similar eclipse happened; and I find that the next similar eclipse will occur on July 11, 1991, or *seventy-six years from the present time*. It is, therefore, only on very rare occasions that such eclipses take place and this fact seems worthy of mention in the historical record of important eclipses.

It may, however, interest the reader to know how or why I happened to make this important discovery, as it has been many years since I was engaged in the discussion of eclipses for chronological purposes. I will, therefore, give a brief account of my investigations which so happily led to this discovery.

In the early summer of the year 1906 I was much embarrassed by a superfluity of leisure, and unable to pass my time agreeably with nothing to do. I had then recently been reading G. H. Darwin's interesting book on "The Tides and Kindred Phenomena," and learned that the mathematical theory of the tides was in a very unsatisfactory condition. I had read in my younger days the explanations of the tides by Newton and by Laplace. These explanations seemed so *plausible* that I then accepted them as correct. But as I had devoted the greater part of my life to the discussion of gravitational problems, the thought occurred to me that possibly a new discussion of an old problem might throw additional light upon a subject which was confessedly very obscure. I therefore concluded to undertake a critical discussion of the theory of the tides, and the discovery of the remarkable eclipse came as a bi-product of that discussion. My leisure has